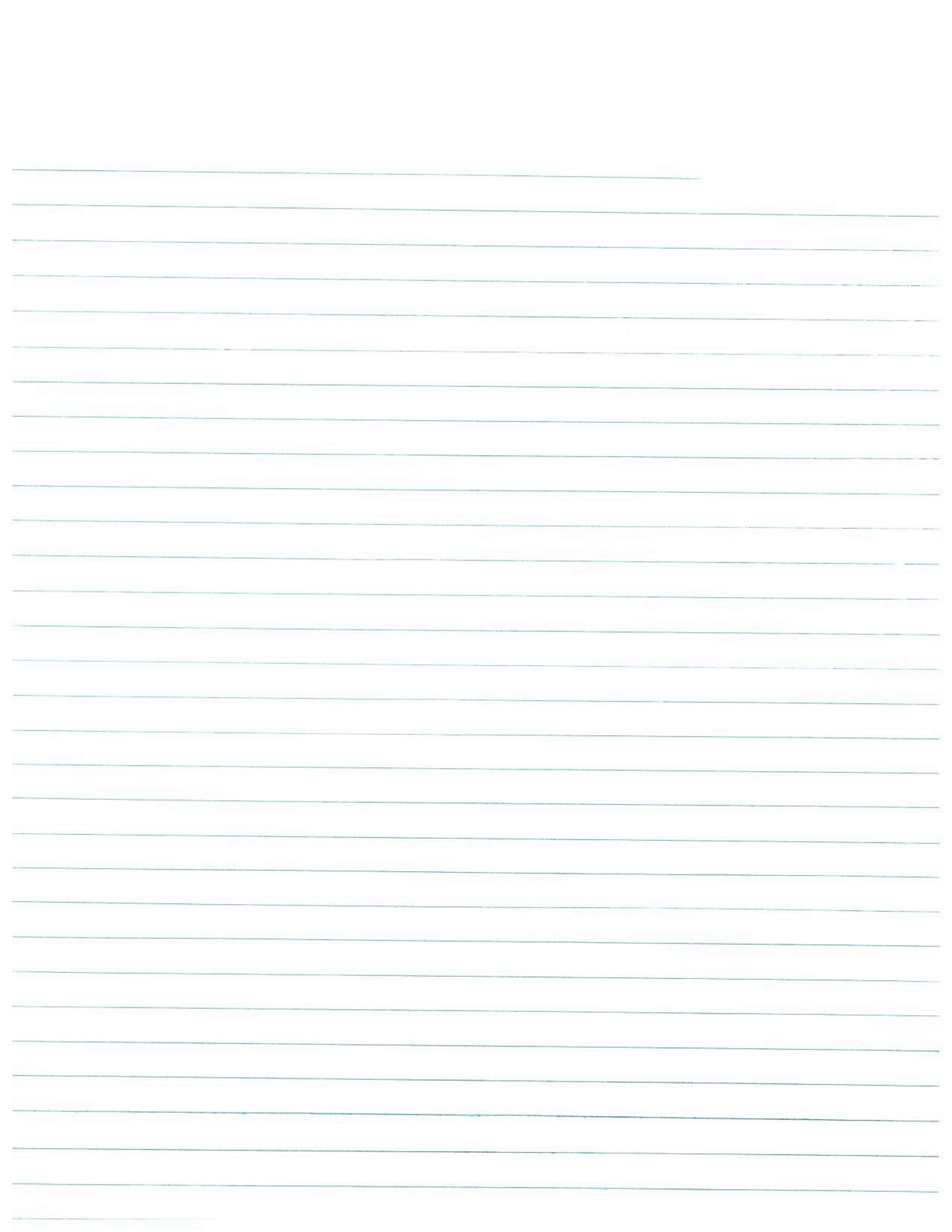


12-230

Xiaoyin Sun

Monroe E

We agreed no plan app is needed to
D the boiler from full time to emergency
only as its increasing stringency. They are
not creating ERCS, just buying them, ~~so~~
so this does not warrant a plan app either.
Will incorporate DS into the TV renewal.



duke, gerallyn

From: Beach, James <jamesbeach@pa.gov>
Sent: Monday, October 06, 2014 1:52 PM
To: duke, gerallyn
Cc: Beach, James; Sun, Xiaoyin
Subject: Responses to EPA Comments on the Draft Plan Approval for Monroe Energy, LLC (23-0003Y - Boiler 13))

Importance: High

Hi Gerallyn,

Below are the PA DEP responses to the comments that you made on the draft plan approval for the installation of a boiler at Monroe Energy, LLC (23-0003Y) for your review. Comment 4 was not presented because 25 Pa. Code Sections 129.201 through 129.204 apply to NOx Budget Allowances, not RACT. RACT II is coming soon, but it is not finalized yet, so we will deal with this issue at the time that it is finalized.

Because of the weather and contract restraints associated with moving this boiler from New Jersey to Marcus Hook, PA before January 1, 2015, is there any way that you can look at this before the end of this week and let me know if there is any further information that you require before we issue this plan approval? If you do require more information, please let me know, and I will try to get that to you as soon as possible.

Thanks,

James A. Beach, P.E. | Environmental Engineer Manager
PA Department of Environmental Protection
Southeast Regional Office
2 East Main Street | Norristown, PA 19401
Phone: 484.250.7501 | Fax: 484.250.5921
Website: www.depweb.state.pa.us

From: Sun, Xiaoyin
Sent: Monday, October 06, 2014 11:52 AM
To: Beach, James
Subject: Response

Comment 1

The plan approval includes no restrictions on operations of this new boiler, which is described in the review memo as only to be used as a back-up boiler during periods of maintenance of existing Boilers 9 and 10, each of which are rated at the same capacity. Without any restrictions in use, debottlenecking may occur. Language must be included in the plan approval that restricts operating the new boiler only a backup to Boilers 9 or 10 or analysis of units that could be debottlenecked if all three boilers operate, must be included in the review memo.

Response:

to be used as a back-up boiler
The proposed new boiler (Boiler 13) is permitted without any restrictions to avoid any stringent regulatory requirements. The boiler is allowed to provide back-up steam at full capacity in the event of a planned or unplanned shutdown of Boiler 9 or Boiler 10 since one boiler alone cannot handle the entire refinery steam demand.

Comment 2

Before the plan approval is issued, please provide calculations that establish the PTE for PM2.5 emissions related to the new boiler. This data should be based on high quality emissions factors since estimated PTE is only a tenth of a ton less than the SER of 10 tpy. If the source in fact does exceed the emissions factor during its source test, the violation will be a high priority violation one option is to restrict actual hours of operation to something less than 8,760 hours to avoid triggering NNSR while operating.

Response:

The proposed boiler (Boiler 13) is an existing boiler approximately 10 years old that will be relocated from a refinery located in New Jersey. The boiler is one of three identical boilers that were operated while firing refinery fuel gas similar in composition to the fuel gas at the Trainer Refinery. When operated in New Jersey, the existing boiler was subject to PM emission limits at or below the proposed PM2.5 emission rate limit of $8.90\text{E-}03$ lb/MMBtu. Monroe Energy reviewed emission testing data from all three of the identical boilers that showed compliance with those PM limits.

PM2.5 emissions are normally lower than PM10 emissions. However, the emission factors used in the application to calculate PM2.5 and PM10 are the same. To make sure those PM2.5 emissions are below 9.9 tons per year, Monroe is required to conduct stack test for PM2.5 emissions, and a condition was added into the Plan Approval as follows:

In the event that PM2.5 emissions do not comply with the emission limit established in this Plan Approval, the permittee must reduce the boiler operating hours, or capacity, or fuel usage, to ensure PM2.5 emissions below 10 tons per year. The restriction, if necessary, will be specified when issuing the Operating Permit based on stack test results. OK

Comment 3

The discussion of CAM applicability should address each pollutant with an emissions limit and a control, i.e., NOX, CO, and VOCs. While it appears that the Section 111 exemption under 40 CFR 64.2(b)(1) applies, it is not clear how the CO catalyst (Boiler 13) which controls CO and VOCs is exempt from CAM.

Response:

The review memo was revised to explain in details which pollutants may be subject to CAM and which sections of exemption applied.

Provide



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE

42-045-00070

September 22, 2014

RECEIVED

OCT 01 2014

Mr. Jeffrey K. Warmann
President and CEO
Monroe Energy, LLC
4101 Post Road
Trainer, PA 19061-3812

Re: Operating Permit Amendment
TVOP No. 23-00003
APS ID 786636, AUTH ID 1031218 and 1031147
Trainer Borough
Delaware County

Dear Mr. Warmann:

Enclosed, please find the amended Title V Operating Permit (TVOP) for Monroe Energy's Trainer Refinery located at 4101 Post Road, Trainer Borough, Delaware County.

This amendment is to incorporate Plan Approval Nos. 23-0003W and 23-0003X into your Operating Permit No. 23-00003.

Please note that your comments on the draft amendment were acceptable, and revisions/corrections were made accordingly.

All monitoring, recordkeeping, and reporting requirements shall begin on the effective date. Please include the permit number above with any correspondence to the Department of Environmental Protection (DEP) concerning this Operating Permit.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

Mr. Jeffrey K. Warmann

- 2 -

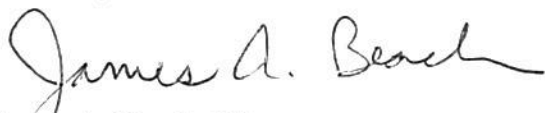
September 22, 2014

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE; HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions concerning the terms and conditions of this permit, please contact me at 484.250.5920.

Sincerely,

A handwritten signature in cursive script that reads "James A. Beach".

James A. Beach, P.E.
Environmental Engineer Manager
New Source Review Section
Air Quality

Enclosure

cc: EPA Region III
Division of Permits
District Supervisor
Ms. Sun
File Id# 23-00003, 23-0003W, 23-0003X
Re 30 (TDB14) 245-5



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR QUALITY PROGRAM

TITLE V/STATE OPERATING PERMIT

Issue Date: June 25, 2014

Effective Date: September 22, 2014

Revision Date: September 22, 2014

Expiration Date: June 25, 2019

Revision Type: Amendment

In accordance with the provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and 25 Pa. Code Chapter 127, the Owner, [and Operator if noted] (hereinafter referred to as permittee) identified below is authorized by the Department of Environmental Protection (Department) to operate the air emission source(s) more fully described in this permit. This Facility is subject to all terms and conditions specified in this permit. Nothing in this permit relieves the permittee from its obligations to comply with all applicable Federal, State and Local laws and regulations.

The regulatory or statutory authority for each permit condition is set forth in brackets. All terms and conditions in this permit are federally enforceable applicable requirements unless otherwise designated as "State-Only" or "non-applicable" requirements.

TITLE V Permit No: 23-00003

Federal Tax Id - Plant Code: 45-5201144-1

Owner Information

Name: MONROE ENERGY LLC
Mailing Address: 4101 POST RD
TRAINER, PA 19061-5052

Plant Information

Plant: MONROE ENERGY LLC/TRAINER
Location: 23 Delaware County 23949 Trainer Borough
SIC Code: 2911 Manufacturing - Petroleum Refining

Responsible Official

Name: JEFFREY K WARMANN
Title: CEO & PRESIDENT
Phone (610) 364 - 8020

Permit Contact Person

Name: MATT TORELL
Title: ENVIRONMENTAL LEADER
Phone: (610) 364 - 8399

[Signature] 
JAMES D. REBARCHAK, SOUTHEAST REGION AIR PROGRAM MANAGER

duke, gerallyn

From: duke, gerallyn
Sent: Thursday, September 04, 2014 9:51 AM
To: 'Sun, Xiaoyin'
Subject: EPA comments on proposed Monroe Energy Draft Plan Approval No. 23-0003Y - Boiler 13 (Source ID 053)

We have completed our review of the above plan approval and offer the following comments:

1. The plan approval includes no restrictions on operations of this new boiler, which is described in the review memo as only to be used as a back-up boiler during periods of maintenance of existing boilers 9 and 10, each of which are rated at the same capacity. Without any restrictions on use, debottlenecking may occur. Language must be included in the plan approval that restricts operating the new boiler only as a backup to boilers 9 or 10 or an analysis of units that could be debottlenecked if all three boilers operate must be included in the review memo.
2. Before the plan approval is issued, please provide calculations that establish the PTE for PM2.5 emissions related to the new boiler. This data should be based on high quality emissions factors since estimated PTE is only a tenth of a ton less than the SER of 10 tpy. If the source in fact does exceed the emissions factor during its source test, the violation will be a high priority violation; one option is to restrict actual hours of operation to something less than 8760 hours to avoid triggering NNSR while operating.
3. The discussion of CAM applicability should address each pollutant with an emissions limit and a control, i.e., NOx, CO, and VOCs. While it appears that the Section 111 exemption under 40 CFR 64.2(b)(1) applies, it is not clear how the CO catalyst (Boiler 13) which controls CO and VOCs is exempt from CAM.
4. The discussion of RACT not being applicable does not appear to be accurate. Section 129.91(g) may not apply because the new source itself does not qualify as a major NOx emitting facility (please confirm) but it appears that the NOx limit on boilers at 129.201(b)(2) would apply. The discussion in the review memo appears to imply that because RACT would be streamlined with BAT, it is not applicable. Streamlining does not make an otherwise applicable requirement inapplicable.

Thank you for the opportunity to review this proposed plan approval. Should you have any questions about our comments, please contact me.

We look forward to reviewing the PM2.5 calculations and to receiving the final plan approval.

Gerallyn Duke
Office of Permits and Air Toxics
EPA Region III
1650 Arch Street
Philadelphia, PA 19103
215-814-2084

From: Sun, Xiaoyin [mailto:xsun@pa.gov]
Sent: Wednesday, August 20, 2014 10:48 AM
To: duke, gerallyn
Cc: Beach, James; Henry, Heather
Subject: Monroe Energy Draft Plan Approval No. 23-0003Y - Boiler 13 (Source ID 053)

Hello Gerallyn,

Monroe Energy submitted a Plan Approval application for installing a new/reconstructed boiler.

Attached are Draft Review and Proposed Plan Approval No. 23-0003Y.

The project is subject to NNSR as per 25 Pa. Code 127.203(b)(1)(ii), the aggregated NOx emissions within 10 years exceeded 25 tons, but the boiler is not subject to LAER. The project requires NOx ERCs.

Please review and comment. If you have any questions, please feel free to contact me.

Thanks.

Xiaoyin Sun | Engineering Specialist
Department of Environmental Protection
Southeast Regional Office
2 East Main Street | Norristown, PA 19401
Phone: 484.250.5072 | Fax: 484.250.5921
www.depweb.state.pa.us

duke, gerallyn

From: duke, gerallyn
Sent: Thursday, September 05, 2013 9:37 AM
To: Xiaoyin Sun
Subject: EPA Comments on Proposed Plan Approval 23-0003W for Monroe Energy

Hello Xiaoyin. We have completed our review of the above plan approval for the D2 project at Monroe Energy in Trainer, PA and find it to be satisfactory. We offer the following recommendations for your consideration:

1. Section D, Source ID 103, Main Flare – The review memo very clearly explains the applicability of the NSPS Subpart Ja to this flare, as a result of the new tie-ins. Pages 13 through 20 of the permit include applicable testing, monitoring, recordkeeping, and work practice requirements from Subpart Ja, with inapplicable parts identified. This accomplishes the overall intent of including applicable requirements in the permit. We noted that effort was made to remove inapplicable NSPS requirements. However, we recommend that the language be modified further, as appropriate, to more clearly identify applicable requirements. Examples of where language could be clarified include:
 - Condition #001(j)(4)(v) – Identify whether additional performance testing is or is not required.
 - Condition #002(a)(2)(iv) – Identify if the flare may or may not be monitored at one location.
 - Condition #002(a)(4) – This references paragraph (b)(3), yet that part of the NSPS is not included in the plan approval.
 - Condition #002(e)(2)(ii) – Revise language to address whether the flare routinely has flow, rather than include a contingency “for flares that routinely have flow.”
 - Condition #002(f) – Revise language to address whether a flow monitor is/is not in place, rather than include a contingency “if a flow monitor is not already in place.”
 - Condition #005(a)(3)(vii) and (7) – Revise language to address the specific flare gas recovery system in place, if any.
 - Condition #005(b)(3) – Reference to “Administrator” should be changed to “DEP.”
2. Review memo – The applicability determination could be improved as follows:
 - Identify whether the facility is a major PSD source (other than for GHGs, which is inferred on the bottom of page 5) and the pollutants for which the facility is a major NNSR source (is inferred that the source is a major NNSR source for NOx, VOCs, and PM2.5 on bottom of page 6). The following comment is based on the assumption that the source is a major NNSR source for NOx, VOCs, and PM2.5 (please confirm).
 - Inclusion of VOCs and PM2.5 in the PSD applicability determination is not needed, as PSD rules only apply for pollutants which are in attainment areas. Also, in Table 1, NOx (an ozone precursor and a PM2.5 precursor) should not be included for the same reason; rather NO2 should be included in Table 1 as the facility is located in an attainment area for NO2.
 - Use the terms in the rules, e.g., potential to emit (PTE) or projected actual emissions (not “projected future potential emissions”). For NNSR, if projected actual emissions are being used, Pennsylvania’s rules at §127.203a(a)(5)(iii)(A) require projected actual emissions to be established in the plan approval as limits. We noted that the values used in the Table 2 were not emissions limits in the proposed plan approval, so we assume that PTE was used in the NNSR applicability determination.

Thank you for the opportunity to review this proposed plan approval. Should you have any questions about the above recommendations, please contact me. I look forward to receiving the final permit and Response to Comments.

Gerallyn Duke

Office of Permits and Air Toxics
EPA Region III
1650 Arch Street
Philadelphia, PA 19103
215-814-2084

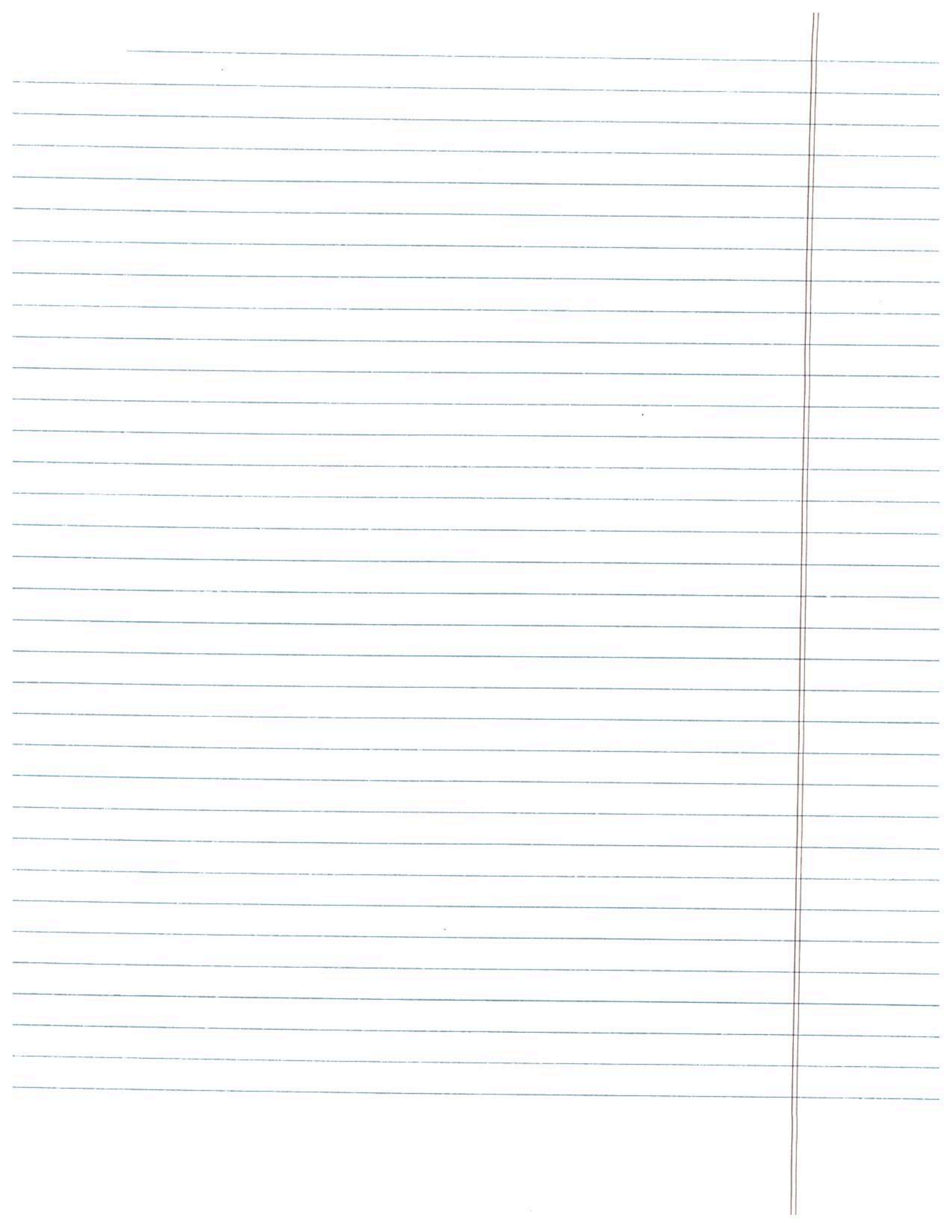
Xlayeri SUN

9-13

PH2.5 - will send notes.

If project is not > 25 T, LAER does
not apply.
RACT is only for existing sources
prior to 1990. Otherwise BAT

On vacation until 9/16





pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

MEMO

TO James Rebarchak
Regional Manager
Air Quality

FROM Xiaoyin Sun
Engineering Specialist
New Source Review Section
Air Quality

THROUGH James A. Beach, P.E.
Environmental Engineer Manager
New Source Review Section
Air Quality

DATE August 20, 2014

RE Plan Approval Application Review –Boiler 13
Monroe Energy, LLC
Trainer Borough, Delaware County
Application No.: **23-0003Y**
APS ID: 848541, AUTH ID: 1035573

GTH-only mod.

On July 21, 2014, the Department of Environmental Protection (DEP) received a Plan Approval application from Monroe Energy, LLC (Monroe) for installing one (1) boiler at Monroe's Trainer Refinery at 4101 Post Road in Trainer Borough, Delaware County. *NEW UNIT*

Facility Information

The Trainer Refinery is a major facility located in a PM2.5 nonattainment area and also in a moderate nonattainment area for ozone.

The Trainer Refinery is a major facility for PSD pollutant emissions: NOx, CO, SOx, PM, PM10, PM2.5 and HAPs.

The Trainer Refinery is a major facility for nonattainment new source review (NNSR) pollutant emissions: NOx, VOC, and PM2.5.

Boiler Information

The boiler (Source ID 053) was manufactured by Rentech (Serial No. 2001-29) in 2004, and was pre-owned by a company in New Jersey. The boiler has a maximum heat input of 346.9 MMBtu/hr firing natural gas and/or refinery fuel gas, and is capable providing 32,000 lb/hr of high pressure steam to the processes at Monroe. The boiler has a heat release rate of 70,070Btu/hr-ft³, which is a high heat release rate as per the definition in 40 C.F.R. §60.41b.

This proposed boiler in this project provides backup capacity during periods of maintenance of existing boilers, Boiler Nos. 9 and 10 (Source IDs 035 and 036), and ensures adequate redundant steam capacity to support refinery operations.

Air Cleaning Devices

The proposed boiler will be equipped with low-NOx burners and flue gas recirculation (Source ID C053-1) to reduce NOx emissions. NOx emissions will be further reduced by selective catalytic reduction (SCR) (Source ID C053-2), manufactured by Durr Environmental. The proposed NOx removal efficiency is around 92.5%.

CO and VOC emissions will be reduced by an oxidation catalyst (Source ID C053-3) – manufacturer to be determined. The designed removal efficiency is around 90% for both CO and VOC emissions.

Emissions

The potential emissions from the boiler stack (Source ID S053) were provided by Monroe, and these estimates were based on the boiler operating at maximum capacity, and 8760 hours per year.

Table 1 shows the calculated emissions, and emission limitations proposed by Monroe:

Table 1 – Boiler Potential To Emit (PTE)

Pollutants	Emission Factors Basis	Emission Factors (lb/MMBtu)	Emissions (lb/hr)	Emissions (TPY)
PM filterable	Vender estimate	7.00E-03	2.43	10.64
PM10	Proposed limit	8.90E-03*	3.09	13.52
PM2.5	Proposed limit	8.90E-03*	3.09	9.90
SO ₂	Calculated based on H2S content in fuel gas	NA	8.89	12.02
NOx	Proposed limit	7.70E-03	2.67	11.70
VOC	Proposed limit	1.30E-03	0.45	1.98
CO	Proposed limit	1.95E-02	6.76	29.63

*: The emission factor includes both filterable and condensable portions.

Table 2 shows the estimated greenhouse gas (GHG) emissions from the boiler:

Table 2 - GHG Emissions

Pollutants	Emission Factors (kg/MMBtu)	Emission Factors Basis	Emissions (TPY)
CO ₂	N/A	Eq. C-5 of 40 C.F.R. 98	232,013.08
CH ₄	3.0E-03	40 C.F.R. 98 Table C-2 for Fuel Gas	10.03
N ₂ O	6.0E-04	40 C.F.R. 98 Table C-2 for Fuel Gas	2.01
CO ₂ e			232,861.47

Regulatory Review

1. PSD

The project is not subject to prevention of significant deterioration (PSD) for any regulated pollutants, because the project itself does not create significant emission increase (SEI) shown in Table 3.

Table 3 – PSD Thresholds for Regulated Pollutants

PSD Pollutants	PSD SEI (SEI) Thresholds (TPY)	PTE (TPY)
PM filterable	25	10.64
PM10	15	13.52
PM2.5	10	9.90
SO ₂	40	12.02
NO _x	40	11.70
CO	100	29.63

PTE = 0
 de bottleneck
 check
 permit
 (250 tons/year)

Greenhouse Gas (GHG) PSD applicability determination:

The Supreme Court ruled on GHGs on June 23, 2014. In the case of Utility Air Regulatory Group v. EPA, the Supreme Court overturned part of U.S. EPA's trigger for when new or modified sources must seek permits for their GHG emissions, holding that the agency can only impose GHG limits in permits when a facility's conventional emissions would require it. The Court ruled that the Clean Air Act "neither compels nor permits EPA to adopt an interpretation of the Act requiring a source to obtain a PSD or Title V permit on the sole basis of its potential greenhouse-gas emissions. The court overturned EPA's "tailoring rule," which sought to amend the law's statutory thresholds. "EPA lacked authority to 'tailor' the Act's unambiguous numerical thresholds of 100 or 250 tons per year to accommodate its greenhouse-gas-inclusive interpretation of the permitting triggers," the opinion says. Instead, the court found the agency's stationary source permit program "cannot rationally be extended beyond" the largest stationary sources that trigger the permit requirements anyway for other pollutants.

Since no other pollutants trigger PSD applicability with this project, PSD for GHG was determined to be not applicable to this project at this time.

2. *NSR*

This project is **not subject to NSR**, because the PTE NO_x, VOC, and PM_{2.5} from the boiler are below the thresholds of significant emission rates as shown in Table 4.

Table 4 – PTE for NO_x, VOC and PM_{2.5}

Pollutants	NO _x	VOC	PM _{2.5}
PTE (TPY)	11.70	1.98	9.90
Significant Emission Rate (TPY)	25	25	10

provide
calcs
basis

PM_{2.5} Emissions

Direct emissions of PM_{2.5} are less than 10 TPY from the project. Therefore, the project is not subject to NSR for PM_{2.5} emissions.

VOC Emissions Aggregations

Monroe offset the aggregated VOC emission increases through Plan Approval No. 23-0003W (issued on September 24, 2013). The aggregated VOC emission increases including this project are shown in Table 5.

Table 5 - VOC Emission Aggregations

PA Nos.	Projects	Issue Dates	VOC Aggregations
23-0003W	D2 Project	9/24/2013	Offset
23-0003X	Emergency Generator	3/13/2014	0.01
23-0003Y	Boiler 13		1.98
Aggregated Emissions			1.99

NO_x Emissions Aggregations

Monroe offset the aggregated NO_x emission increases through Plan Approval No. 23-0003X (issued on March 13, 2014). However, on May 8, 2014, Monroe withdrew a previously issued Plan Approval No. **23-0003U** (issued on November 9, 2011) for a project to install and operate two (2) new boilers (Boiler Nos. 11 and 12). Since the company did not use the ERCs purchased for the boilers in plan approval 23-0003U, Monroe wishes to recalculate the 10-year aggregated NO_x emissions removing the NO_x emissions increase in plan approval 23-0003U from the calculation. The difference in the ERCs calculated with and without the NO_x emissions from Plan Approval No. 23-0003U are shown in Table 6:

Table 6 – Aggregated NOx Emissions Revision

Date	Plan Approval/ RFD	Description	NOx Emission Changes	
			23-0003X	23-0003Y
			(tpy)	
04/04/2003	23-0003E	Gasoline & Diesel Desulfurization Project	0.00	0.00
04/18/2005	23-0003G	Platformer Heater Modification	0.00	0.00
05/20/2005	23-0003H	Isocracker Unit Modification	18.00	18.00
10/03/2006	23-0003I	Two New Boilers	23.70	23.70
05/04/2007	23-0003J	Clean Fuel Project	39.00	39.00
10/19/2007	23-0003K	Modification to PA 23-0003G	21.89	21.89
10/23/2008	23-0003M	Cooling Tower	0.00	0.00
12/08/2008	23-0003N	FCCU Feed Heater Modification	0.00	0.00
02/09/2009	23-0003O	ReVAP	Withdrawn	
04/10/2009	23-0003P	2010 Turnaround	1.59	1.59
09/28/2009	23-0003Q	Boiler MACT Phase II Application	0.00	0.00
12/04/2009	RFD	Light Components Loading	0.07	0.07
12/23/2009	23-0003R	Aromatic Saturation Unit Project		
10/01/2010	23-0003S	Flare Gas Recovery Project	0.00	0.00
10/01/2010	23-0003T	Amended Alky ReVAP Project	Withdrawn	
11/09/2011	23-0003U	Two New Boilers (withdrawn)	7.11	Withdrawn*
04/12/2012	23-0003V	Diesel Heater Project	Withdrawn	
08/09/2012	RFD	Main Flare - Turnaround	0.00	0.00
01/10/2013	RFD #3418	Propane Loading into Trucks	0.00	0.00
04/04/2013	RFD #3561	Peabody Heater Modifications	0.00	0.00
04/23/2013	RFD #3596	Max Jet	0.00	0.00
05/17/2013	23-0003W	D2 Project	0.00	0.00
03/13/2014	23-0003X	400 kW Emergency Generator	1.19	1.19
Total Contemporaneous Emission Increases			112.45	105.34
	23-0003Y	Boiler 13		11.70
Total Contemporaneous Emission Increases with Proposed Boiler 13				117.04
Total Contemporaneous Emission Reduction Credits Required			146.20	152.28
Total NOx ERCs Previously Provided with PA 23-0003X			(146.20)	(146.20)
Net Emission Reduction Credits Required			0.00	6.08

*: Plan Approval withdrew on May 13, 2014 (after PA 23-0003X had been issued).

The recalculated NOx ERCs are 152.28 tons, and an additional 6.08 tons of NOx ERC is required.

3. NSPS

The boiler is subject to the NSPS subparts Db and Ja. According to 40 C.F.R. §60.40b(c), the boiler must comply with the NOx and PM standards of 40 C.F.R. 60 Subpart Db, and the SO₂ standards of 40 C.F.R. 60 Subpart Ja.

triggers denunciations 100SR
127,203(b)(3)
LAER?

The applicable standards are specified below and in the Plan Approval.

40 C.F.R. 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

NOx emission limit of 0.20 lb/MMBtu as specified in §60.44b(a)(1)(ii) applies to this boiler. The NOx emissions from the boiler are required to be tested and continuously monitored as per §§60.46b and 60.48b. The applicable requirements including reporting and recordkeeping are specified in the Plan Approval.

There are no applicable requirements for PM emissions from this boiler.

40 C.F.R. 60 Subpart Ja - Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction Commenced After May 14, 2007.

The applicable requirements for the boiler are H₂S content limits in the fuel gas:

- (a) 162 ppmv determined hourly on a 3-hour rolling average basis; and
- (b) 60 ppmv determined daily on a 365 successive calendar day rolling average basis.

The H₂S content in the fuel gas is required to be monitored continuously. The applicable requirements including reporting and recordkeeping are specified in the Plan Approval.

4. **MACT**

40 C.F.R. 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial Boilers

The boiler is defined as **new, equipped with oxygen trim system, and a unit designed to burn gas 1 fuels**. The boiler is required to conduct 5-year tune-up. The compliance date is at startup of the boiler. The applicable requirements including reporting and recordkeeping are specified in the Plan Approval.

no h₂s
But
desires
H₂S for
PM, CO

5. **CAM**

40 C.F.R. PART 64 - COMPLIANCE ASSURANCE MONITORING

The boiler is exempt from Compliance Assurance Monitoring (CAM) requirements as per 40 C.F.R. §64.2(b)(1)(i): Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.

PM
monitored

6. **25 Pa. Code**

§123.11(a)(2) - Combustion Unit PM Emissions

oxidation catalyst for CO + VOC addressed
in Pt 60 or 63?
SCR
NOx

VOC + NOx
addressed in NSPS

Allowable emissions = 0.14 lb/MMBtu (E=346.9 MMBtu/hr)

§123.22(e)(1) - Combustion Unit SO₂ Emissions

Not to exceed 0.6 lb/MMBtu/hr

§123.41 - Visible Emission Limitations

Opacity equals to or great than 20% for 3 minutes or less in any 1 hour.
Opacity less than 60% at any time.

§127.12(a)(5) – Best Available Technology (BAT)

The PM, NO_x, and SO₂ emission limits proposed by Monroe meet the standards for contaminants in 25 Pa. Code Chapter 123. The following removal efficiencies and emission limits are considered BAT for boilers.

The boilers will be equipped with Selective Catalytic Reduction (SCR) to reduce NO_x emissions by 92.5% and achieve NO_x emission limit of 0.0077lbs/MMBtu.

The boiler will be equipped with CO Catalyst to reduce CO and VOC emissions by 90%, and achieves 0.0195 lbs CO/MMBtu and 0.0013 lbs VOC/MMBtu.

BAT for SO_x emissions is limit the H₂S content in the fuel gas to 162ppm 3-hour rolling average basis, and 60ppm successive calendar day rolling average basis.

§129.91 through 94 – Reasonably Available Control Technology (RACT)

RACT does not apply to this boiler, because the boiler is a new or reconstructed unit, and must comply with, at a minimum, BAT that is more stringent than RACT.

§145.4 - NO_x Budget Trading Program

The boiler is subject to NO_x Budget Trading Program as per §145.4(a)(2)(iii)(A).

As per §145.4(b)(1), the boiler is exempt from the requirements of the NO_x Budget Trading Program, except for 25 Pa. Code §§145.2, 145.3, 145.7, 145.40-145.43, 145.50-145.57, and 145.60-145.62.

§127.44 – Public Notice

Notice of intent to issue will be published in PA Bulletin and in local newspaper.
To be updated.

Recommendation

To be updated.

Summary of the application:

Event	Regulations	Date	Comments
Submittal of Application	NSR – Offset only NSPS – Db and Ja MACT – DDDDD BAT	Received on 7/21/2014	Non PDG
Coordination			None
Acceptance of a complete application		7/30/2014	
Publication in PA Bulletin		9/6/2014	
Publication in local newspaper			
Comments from public received			
Comments from U.S. EPA Received			



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

MEMO

TO James Rebarchak
Regional Manager
Air Quality

FROM Xiaoyin Sun
Engineering Specialist
New Source Review Section
Air Quality

THROUGH Janine Tulloch-Reid, P.E.
Environmental Engineer Manager
New Source Review Section
Air Quality

DATE August 8, 2013

RE Plan Approval Application Review – D2 Project
Monroe Energy, LLC
Trainer Borough, Delaware County
Application No.: **23-0003W**
APS ID: 813062, AUTH ID: 9777753

On June 3, 2013, DEP received a Plan Approval application from Monroe Energy, LLC (Monroe Energy) for a D2 project at its Trainer Refinery in Trainer Borough, Delaware County.

The facility is a major facility located in a PM_{2.5} nonattainment area and also in a severe nonattainment area for ozone.

Facility Information

Monroe Energy owns and operates a petroleum refinery that processes mainly light, sweet (low-sulfur) crude oils and primarily produces jet fuel and other transportation fuels, such as gasoline, and diesel fuel. Other products include home heating oil, residual fuel oil, and liquefied petroleum gas (i.e. propane). The refinery also buys, sells, and trades intermediate streams that can be used as feedstock or fuel blending components.

The refinery currently processes straight run diesel from the 543 and 544 Crude Units, and light cycle oil (LCO) from the Fluid Catalytic Cracker Unit (FCCU) through the refinery's existing Diesel Hydrotreater (DHT) to make ultra-low sulfur diesel (ULSD). The existing DHT has historically been used to treat up to approximately 32,000 barrels per stream-day (BPSD) of diesel. The DHT is normally operated at its maximum capacity, and all excess straight run diesel from the crude units and some LCO are downgraded to products that are less valuable such as heating oil. Additional LCO is currently processed by the Isocracker Unit which converts a portion of the LCO to less valuable products.

The refinery also operates a vacuum gas oil hydrotreater (VGO HT) which treats VGO prior to it being processed in the FCCU where it is converted to a number of intermediate streams such as heavy cat naphtha (HCN), light cat naphtha (LCN), and LCO. The VGO HT has also historically been used to treat naphtha. The VGO HT is a catalytic unit that converts the sulfur compounds in the feed stream to hydrogen sulfide (H_2S). The H_2S is subsequently separated from the feed stream, and routed to the refinery's Claus Sulfur Recovery Unit (SRU) where the H_2S is converted to elemental sulfur. Prior to treatment in the VGO HT, the VGO is heated by a refinery fuel gas-fired feed heater (currently identified as Source ID 741 - VGO HDS Charge Heater in the refinery's TVOP). The VGO HT has historically been used to treat up to approximately 45,000 BPSD of VGO.

D2 Project

Due to the incentive to produce additional ULSD, the refinery proposes to repurpose its existing VGO HT as a second diesel hydrotreater (D2HT) which will enable the refinery to upgrade streams such as heating oil and LCO to ULSD. Piping changes will be made to deliver straight run diesel and LCO to the newly designated D2/VGO Feed Heater (currently Source ID 741 VGO HDS Charge Heater) and return the hydrotreated product back to the existing diesel drying operations.

The majority of the modifications to repurpose the VGO HT as a second diesel HT will take place outside of battery limits (OSBL), and will allow LCO and straight run diesel to be fed to the D2/VGO HT, and ULSD product to be routed to drying operations and the refinery's ULSD tanks.

Following implementations of this project are

1. VGO will be fed directly to the FCCU via existing piping.
2. Piping modifications will be made to introduce diesel and LCO into the newly designated D2/VGO HT through the newly designated D2/VGO HT Feed Heater (Source ID 741). These piping changes will accomplish the existing ability to process VGO and naphtha through the D2/VGO Feed Heater and D2/VGO HT.
3. Approximately 30,000 BPSD (annual average) of straight run diesel and LCO will be processed in the DHT, and
4. Approximately 30,000 BPSD (annual average) of straight run diesel and LCO will be processed in the D2/VGO HT.
5. The refinery anticipates periods when the D2/VGO HT may experience an increase in throughput, while the DHT experiences a corresponding decrease in throughput.

6. When the DHT is out of service and the D2/VGO HT is operated at or near its capacity.

The following two (2) flow diagrams are attached to this memo to illustrate the current operation and the proposed operation.:

Figure A-1 Current Operations Process Flow Diagram

Figure A-2 D2 Project Process Flow Diagram

Units involved in the project:

New Emissions Units

The new fugitive components (Group Source IDs 114, 128, and 215) associated with the new piping needed to deliver straight run diesel/LCO to and from the D2 HTU as new emission units will result in new potential emissions for the project.

Modified Emissions Units

Modified emission units are those emissions units that undergo physical modification or a change in the method of operation. The repurposed Tank 54 (Source ID 180; Group Source ID 300) was determined to be a modified emission unit due to change in the method of operation that would occur as a result of the project. Tank 54 will store diesel that has a higher vapor pressure than VGO, but the emissions from Tank 54 will increase based on baseline actual and future potential emissions.

Affected Emissions Units

Affected emissions units are those existing sources that will be “used more” due to the project, or have a capacity limitation from upstream or downstream processes increased (de-bottlenecking).

- The Claus Sulfur Recovery Unit (SRU Source ID 102) will not be physically modified; however, the sulfur loading to the SRU is predicted to increase above current sulfur loading levels as a result of the project. Thus the SRU will “operate more”. Therefore, the SRU is an affected emissions unit.
- The refinery wastewater treatment plant (WWTP) will not be physically modified; however, the loading of organic compounds to the WWTP is expected to increase due to the addition of the new pre-filter and salt dryer equipment. The new pre-filter and salt dryer will result in an increased flow of VOC-containing wastewater of up to 5.5 gallons per minute (gal/min) above current levels. Thus, the WWTP will “operate more” as a result of the project.

Emissions Units Not Affected

Monroe Energy has determined that the following units will be impacted due to the project, but will not “operate more” or “de-bottlenecked” as a result of this project.

- D2/VGO HTU

Straight run diesel/LCO and VGO are both “heavy liquid” petroleum-based feedstock, and will be processed through the existing D2/VGO HTU. The throughput capacity of 45,000 barrels per stream day will remain unchanged. Any other units up and down stream of the D2/VGO HTU, including the feed heater (Source ID 741), steam generating units (Source IDs 033, 034, 035 and C01) or the platformer, will remain unchanged.

The source name in AIMS for Source ID 741 was changed from VGO HDS Charge Heater to D2/VGO Hydrotreater Feed Heater. The associated stack name (Source ID S21) was also changed.

- Existing Fugitive Components

The emissions from the existing fugitive components will not be affected since diesel/LCO and VGO are both “heavy liquids”.

- FCCU (Source ID 101)

The refinery currently has the capability to bypass the VGO Feed Heater (Source ID 741) and VGO HTU and feed VGO directly to the FCCU feed heater, which the refinery has operated in the configurations. To operate under existing bypass VGO HTU configuration does not make FCCU and its Feed Heater (Source ID 733) to “operate more”.

- Main Flare (Source ID 103 and C103)

There will be new tie-ins to the main flare collection header. The new tie-ins are for process safety valves (PSVs) that would only vent to the flare if there is a process upset, malfunction, or emergency condition.

Emissions

Monroe Energy estimated that VOC emissions will increase by 3.44 tons per year. That is 0.30 tons from the new fugitive components and 3.14 tons from Tank 54.

Regulatory Review

A. PSD Applicability Determination

Regulated NSR Pollutants

Is it a major PSD source? (yes at least for GHGs)

The PSD applicability determination was conducted following PSD Step 1 in the handout obtained at EPA NSR/PSD/GHG Training for PADEP SERO on January 17 – 19, 2012.

Step 1 – Projected actual emissions

Table 1 shows projected future potential emissions from the affected units:

Table 1

Affected Units	Source ID	Projected Future Potential Emissions (TPY)						
		NO _x	CO	PM	PM10/PM2.5	SO _x	VOC	CO ₂ e
SRU #102	102	4	3.36	0.08	0.30	11.25	0.22	2,642
WWTP	106						16.86	
New Fugitive Components	215						0.30	
Tank 54 #180	180/300						3.59	
Emission Increase		4	3.36	0.08	0.30	11.25	20.97	2,642
Significant Emission Rates		40	100	25	15/10	40	40	75,000
Applicability Determination		No	No	No	No	No	No	No

The project is not subject to PSD for any regulated NSR pollutants, because the project itself does not cause a significant emission rate increase.

Greenhouse Gas (GHG)

The GHG PSD applicability determination was conducted following EPA GHG Applicability Flow Chart Appendix D – Modified Sources (after July 1, 2011)

- Will the permit be issued on or after July 1, 2011?
Yes
- Is this modification subject to PSD permitting for a regulated NSR pollutant other than GHG?
No
- Determine PTE for the existing stationary source for each of the 6 GHG pollutants. Convert GHG emissions to CO₂e. (See Table 1)
- Are the potential GHG emissions on a CO₂e basis equal to or greater than both 100,000 TPY and 250 TPY (100 TPY) on a mass basis?

Yes, the Trainer Refinery is an existing stationary source with CO₂e PTE greater than 100,000TPY and 100 TPY on a mass basis.

5. Determine the past actual (baseline) emissions in TPY for units that are part of the modification for each of the 6 GHG pollutants.

SRU CO₂e = 2,937TPY from Sept. 2009 through Aug. 2011 when the Refinery was operated by ConocoPhillips.

7. Determine the modified unit future projected actual emissions in TPY for each of the 6 GHG:

SRU CO₂e = 2,642 TPY (Table 1)

8. For each unit, determine the increase or decrease in emissions for each of the 6 GHG pollutants.

Future projected actual –Past actual (baseline) = 2,642 - 2,937 < 0 TPY

11. Is the sum of GHG mass emissions increase over zero TPY?

No.

✓ Conclusion: GHG emissions are not subject to PSD as part of this permit review.

B. Nonattainment New Source Review (NNSR)

Step 1

- 25 Pa. Code §127.203a. - Applicability Determination

Major NNSR for NOx, VOC, PM2.5?

The NOx, VOC and PM2.5 emissions from the affected units are listed in Table 2 below:

Table 2

Affected Sources	Source ID	Pollutants	Baseline Actual	Future Potential	Emission Increase
h SRU b	102	NOx	4.45	4.00	0
		VOC	0.24	0.22	0
		PM2.5	0.34	0.30	0
		SO ₂	19.99	11.25	0
WWT	106	VOC	16.86	16.85	0
Tank 54	180/300	VOC	0.45	3.59	3.14
New Fugitive Components	114	VOC	0.00	0.30	0.30
	128				
	215				

PTE ? PTE of PTE

^{BME}
The actual emissions were calculated from Sept. 2009 through Aug. 2011 when the Refinery was operated by ConocoPhillips. See attachment II – Best Controlled Summary Report (2009 – 2011).

The project will result in VOC emission increase of 3.44 tons, which is less than 25 tons. The project is not subject to Lowest Achievable Emission Rate (LAER).

Step 2

- 25 Pa. Code §127.203 – Facility subject to special permit requirements.

(b)(1) The requirements of this subchapter apply if the aggregated emissions determined according to subparagraph (i) or (ii) exceed 25 TPY of NOx or VOCs.

(ii) The proposed increases and decreases in emissions are aggregated with other increases and decreases which occurred within 10 years prior to the date of submission of a complete plan approval application. If the aggregated emissions increase calculated using this subparagraph meets or exceeds the emissions rate that is significant, only the emissions offset requirements in §127.205(3) apply to the aggregated emissions.

The aggregated VOC emissions within 10 years prior to and including this project are summarized in Table 3 below:

Table 3

Date	Plan Approval /RFD	Project	VOC Emissions (TPY)
04/04/2003	23-0003E	Gasoline/Diesel Desulfurization Project	14.39
04/18/2005	23-0003G	Platformer Heater Modification	4.02
05/20/2005	23-0003H	Isocracker Unit Modification	0.17
10/03/2006	23-0003I	Two New Boilers	2.60
05/04/2007	23-0003J	Clean Fuel Project	0.00
10/19/2007	23-0003K	Modification to PA 23-0003G	0.00
10/23/2008	23-0003M	Cooling Tower	0.74
12/08/2008	23-0003N	FCCU Feed Heater Modification	-1.10
02/09/2009	23-0003O	ReVAP	Project withdrawn
04/10/2009	23-0003P	2010 Turnaround	0.26
09/28/2009	23-0003Q	Boiler MACT Phase II Application	0.00
12/04/2009	RFD	Light Components Loading	0.14
12/23/2009	23-0003R	Aromatic Saturation Unit Project	Project withdrawn
10/01/2010	23-0003S	Flare Gas Recovery Project	3.58
10/01/2010	23-0003T	Amended Alky ReVAP Project	Project withdrawn
11/09/2011	23-0003U	Two New Boilers (Replace Boiler 8)	2.10
04/12/2012	23-0003V	Diesel Heater Project	Project withdrawn
08/09/2012	RFD	Main Flare - Turnaround	0.09
01/10/2013	RFD #3418	Propane Loading into Trucks	0.00
04/04/2013	RFD #3561	Peabody Heater Modifications	0.00
04/23/2013	RFD #3596	Max Jet	0.21
05/30/2013	23-0003W	D2 Project	3.44
Net Increase			30.64

The aggregated VOC emission increases and decreases occurred within 10 years period to the date of this application is over the significant level. Therefore, the emission offset requirements in §127.205(3) apply.

- 25 Pa. Code §127.205 – Special permit requirements.

(3) Each modification to a facility which meets the requirements of and is subject to this subchapter shall offset the total of the net increase.

The entire net emissions increases to be offset are 30.64 tons.

- 25 Pa. Code §127.203(b)(3)

The emission offset ratio for major facilities located in Pennsylvania Southeast Region is 1.3:1.0.

The amount VOC ERC required to offset the total net increase is: $30.64 \times 1.3 = 39.84$ tons

C. 40 CFR 60 - New Source Performance Standards (NSPS)

- The following table shows the existing affected units currently subject to the 40 CFR 60 Subparts. The applicable requirements in each subpart are specified in TVOP No. 23-00003 for these units.

Source ID	Source Name	Subpart
102	SRU	J
106	Process Drains & H ₂ O Separator	QQQ
215	New fugitive components	GGGa

The units are not considered modification by themselves as per 40 CFR §60.15(e)(2). Therefore, no additional NSPS requirements apply.

- New fugitive components

The new fugitive components, will be grouped into Source ID 215, are subject to 40 CFR 60 Subpart GGGa. The applicable requirements of Subpart GGGa are specified in Monroe Energy's TVOP. These new fugitive components will be required to comply with these applicable requirements.

- Main Flare (Source ID 103 and C103)

There is no emission increase from the main flare. However, due to the new tie-ins for PSVs, the flare is subject to NSPS Subpart Ja, as per 40 CFR §60.100a(c). The applicable requirements are specified in Attachment I.

The compliance date to comply Subpart Ja is November 11, 2015 as per 40 CFR §60.103a(f).

- Tank 54 (Group Source ID 300)

NSPS Subpart Kb – NSPS for volatile organic liquid storage vessels

Tank 54 has a capacity of over 2 million gallons and the vapor pressure is 0.0054 psia. The tank is exempt from 40 CFR §60.110(b).

D. NESHAP/MACT

The refinery is currently subject to 40 CFR 63 Subpart CC.

The SRU is currently subject to 40 CFR 63 Subpart UUU.

The D2 project does not make these units subject to additional NESHAP/MACT requirements.

E. 25 Pa. Code

- Chapter 123 – Standards of Contaminants

The applicable standards are specified in TVOP No. 23-00003. The D2 project does not make the affected units subject to additional requirements

- Section 129.58 – Petroleum refineries – fugitive sources.

The new fugitive components (Group Source ID 114) are subject to the requirements of this section. The current TVOP specifies the applicable requirements for the components.

- 25 Pa. Code §127.12(a)(5) - Best available technology (BAT)

The affected units will be required to comply with all applicable NSPS, NESHAP and 25 Pa Code requirements. Compliance with these rules and regulations are considered BAT for this project.

- 20 Pa. Code §127.702 – Plan Approval Fees .

The applications fees are \$7,000; \$5,300 under Chapter 127 Subchapter E, and \$1,700 under NSPS Chapter 122.

- 25 Pa. Code §127.44 - Public Notice.

Notice of intent to issue the Plan Approval and incorporate into TVOP will be published in PA Bulletin and local newspaper as per 25 Pa. Code §127.44. To be updated.

Recommendation

To be updated.

Attachments

Figure A-1 Current Operations Process Flow Diagram

Figure A-2 D2 Project Process Flow Diagram

Attachment I – NSPS Subpart Ja - Applicable requirements for Main Flare (Source ID 103/C103)

Attachment II – Best Controlled Summary Report (2009 – 2011)